

What is claimed is:

1. A base testing apparatus for use in a CDMA communication system in combination with an active base transceiver station that has a plurality of sector transceivers corresponding to a plurality of sectors in a service area, respectively, the base station testing apparatus having an internal mobile terminal placed therein and comprising:

first means for individually adjusting degrees of coupling between the internal mobile terminal and each of the transceivers, respectively; and

second means, coupled to the first means, for reproducing a softer handover test of the sector transceivers between two adjacent ones of the sectors by controlling the degrees of coupling between the internal mobile terminal and each sector transceiver through the first means.

2. A base testing apparatus as claimed in claim 1, wherein the degrees of coupling are defined by attenuation values and the first means comprises:

a plurality of pre-set attenuators which are made to correspond to the transceivers in the BTS and each of which provides at least three attenuation values different from one another.

3. A base testing apparatus as claimed in claim 2, wherein each of the pre-set attenuators provides, as at least three attenuation values, a first attenuation value, a second attenuation value smaller than the first attenuation value, and a third attenuation value smaller than the second attenuation value.

4. A base testing apparatus as claimed in claim 3, wherein the first attenuation value gives an optimum call connection state between the internal mobile terminal and the sector transceiver of the corresponding sector while the second and the third attenuation values give a call connection start enable state between the internal mobile terminal and the sector transceiver of the corresponding sector and a call disconnection state between the internal

mobile terminal and the sector transceiver of the corresponding sector, respectively.

5. A base testing apparatus as claimed in claim 4, wherein the first, the second, and the third attenuation values are equal to 0 dB, -3 dB, and -50 dB, respectively.

6. A base testing apparatus as claimed in claim 4, wherein each of the pre-set attenuators comprises:

a first attenuator terminal given a switching control signal from the second means;

a second attenuator terminal connected to the sector transceiver of the corresponding sector;

a third attenuator terminal coupled to the internal mobile terminal;

a plurality of attenuator units having attenuation values different from each other;

a plurality of switches for selectively connecting the attenuator units between the second and the third attenuator terminals in response to drive signals to provide the first, the second, and the third attenuation values; and

a drive control circuit for controlling on/off control of the respective switches in response to the switching control signal sent through the first attenuator terminal.

7. A base testing apparatus as claimed in claim 6, wherein the attenuator units are equal in number to two and provides the attenuation values of -3 dB and -47 dB, respectively.

8. A base testing apparatus as claimed in claim 6, wherein each of the pre-set attenuators further comprises:

a plurality of $\lambda/2$ strip lines which are connected in common to an intersection point connected to the third attenuation terminal and which are also connected to the switches for selectively connecting the $\lambda/2$ strip lines to the second attenuation terminal through the attenuation units selected.

9. A base testing apparatus as claimed in claim 8, wherein the attenuator units are equal in number to two and provides the attenuation values of -3 dB and -47 dB, respectively;

the switches being arranged so that the two attenuation units are not connected between the second and the third attenuator terminals when the first attenuation value is provided while the attenuation unit of -3 dB and both the attenuation units of -3 dB and -47 dB are connected between the second and the third terminals when the second and the third attenuator values are provided, respectively.

10. A base testing apparatus as claimed in claim 1, wherein the second means comprises:

setting means for setting a sector number assigned to each sector to indicate a sector;

control means for controlling the degrees of coupling in the first means to reproduce the softer handover test so that the degrees of coupling are selected from a first degree of coupling between the internal mobile terminal and the sector transceiver of the indicated sector, a second degree of coupling between the internal mobile terminal and an adjacent sector transceiver of an adjacent sector to the indicated sector, and a third degree of coupling between the internal mobile terminal and the remaining sector transmitters.

11. A base testing apparatus as claimed in claim 10, wherein the degrees of coupling are defined by attenuation values and the first degree of coupling is defined by a first attenuation value while the second degree is defined by a second attenuation value smaller than the first attenuation value and the third degree is defined by a third attenuation value smaller than the second attenuation value.

12. A base testing apparatus as claimed in claim 11, wherein the second means further reproduces the softer handover test by executing a call

25

connection test between two radio paths between the internal mobile terminal and the indicated sector and between the internal mobile terminal and the adjacent sector.

13. A base testing apparatus as claimed in claim 12, wherein the radio path between the internal mobile terminal and the indicated sector transceiver is kept at the first attenuation value while the other radio path between the internal mobile terminal and the adjacent sector transceiver is kept at the second attenuation value and the remaining radio paths are kept at the third attenuation value.

14. A base testing apparatus as claimed in claim 13, wherein the second means further executes another call connection test of the radio path between the internal mobile terminal and the indicated sector transceiver before the call connection test of the two radio paths and a further call connection test of another radio path between the internal mobile path and the adjacent sector transceiver after the call connection test of the two radio paths.

15. A base testing apparatus as claimed in claim 14, wherein each of the call connection test of the radio path or the radio paths monitors a power control time interval in consideration of the softer handover operation.

16. A method of testing an active base transceiver station (BTS) used in a CDMA communication system, the active base transceiver station having a plurality of sector transceivers corresponding to a plurality of sectors in a service area, respectively, the method being executed by the use of an internal mobile terminal and comprising the steps of:

individually adjusting degrees of coupling between the internal mobile terminal and each of the transceivers, respectively; and

reproducing a softer handover test of the sector transceivers between two adjacent ones of the sectors by controlling the degrees of coupling between the internal mobile terminal and each sector transceiver through the

first means.

17. A method as claimed in claim 16, wherein the degrees of coupling are defined by attenuation values and the adjusting step comprises the step of:

using a plurality of pre-set attenuators which are made to correspond to the transceivers in the BTS and each of which provides at least three attenuation values different from one another.

18. A method as claimed in claim 17, wherein each of the pre-set attenuators provides, as at least three attenuation values, a first attenuation value, a second attenuation value smaller than the first attenuation value, and a third attenuation value smaller than the second attenuation value.

19. A method as claimed in claim 18, wherein the adjusting step comprises the steps of:

giving the first attenuation value in an optimum call connection state between the internal mobile terminal and the sector transceiver of the corresponding sector; and

giving the second and the third attenuation values in a call connection start enable state between the internal mobile terminal and the sector transceiver of the corresponding sector and in a call disconnection state between the internal mobile terminal and the sector transceiver of the corresponding sector, respectively.

20. A method as claimed in claim 19, wherein the first, the second, and the third attenuation values are equal to 0 dB, -3 dB, and -50 dB, respectively.

21. A method as claimed in claim 19, wherein each of the pre-set attenuators comprises:

a first attenuator terminal given a switching control signal from the second means;

27

a second attenuator terminal connected to the sector transceiver of the corresponding sector;

a third attenuator terminal coupled to the internal mobile terminal;

a plurality of attenuator units having attenuation values different from each other;

a plurality of switches for selectively connecting the attenuator units between the second and the third attenuator terminals in response to drive signals to provide the first, the second, and the third attenuation values; and

a drive control circuit for controlling on/off control of the respective switches in response to the switching control signal sent through the first attenuator terminal.

22. A method as claimed in claim 21, wherein the attenuator units are equal in number to two and provides the attenuation values of -3 dB and -47 dB, respectively.

23. A method as claimed in claim 21, wherein each of the pre-set attenuators further comprises:

a plurality of $\lambda/2$ strip lines which are connected in common to an intersection point connected to the third attenuation terminal and which are also connected to the switches for selectively connecting the $\lambda/2$ strip lines to the second attenuation terminal through the attenuation units selected.

24. A method as claimed in claim 23, wherein the attenuator units are equal in number to two and provides the attenuation values of -3 dB and -47 dB, respectively;

the switches being operated in the adjusting step so that the two attenuation units are not connected between the second and the third attenuator terminals when the first attenuation value is provided while the attenuation unit of -3 dB and both the attenuation units of -3 dB and -47 dB are connected between the second and the third terminals when the second and the third attenuator values are provided, respectively.

25. A method as claimed in claim 16, wherein the reproducing step comprises the steps of:

setting a sector number assigned to each sector to indicate a sector;
and

controlling the degrees of coupling in the first means to reproduce the softer handover test so that the degrees of coupling are selected from a first degree of coupling between the internal mobile terminal and the sector transceiver of the indicated sector, a second degree of coupling between the internal mobile terminal and an adjacent sector transceiver of an adjacent sector to the indicated sector, and a third degree of coupling between the internal mobile terminal and the remaining sector transmitters.

26. A method as claimed in claim 25, wherein the degrees of coupling are defined by attenuation values and the first degree of coupling is defined by a first attenuation value while the second degree is defined by a second attenuation value smaller than the first attenuation value and the third degree is defined by a third attenuation value smaller than the second attenuation value.

27. A method as claimed in claim 26, wherein the reproducing step comprises the step of:

executing a call connection test between two radio paths between the internal mobile terminal and the indicated sector and between the internal mobile terminal and the adjacent sector.

28. A method as claimed in claim 27, wherein the executing step comprises the steps of:

keeping the radio path between the internal mobile terminal and the indicated sector transceiver at the first attenuation value;

keeping the other radio path between the internal mobile terminal and the adjacent sector transceiver at the second attenuation value; and

keeping the remaining radio paths at the third attenuation value.

29

29. A method as claimed in claim 28, wherein the reproducing step comprises the steps of;

executing another call connection test of the radio path between the internal mobile terminal and the indicated sector transceiver before the call connection test of the two radio paths; and

executing a further call connection test of another radio path between the internal mobile path and the adjacent sector transceiver after the call connection test of the two radio paths.

30. A base testing apparatus as claimed in claim 29, wherein each of the call connection test of the radio path or the radio paths monitors a power control time interval in consideration of the softer handover operation.

20220119 16:11:00